

**The Prospects Small and Community Wind in Maine**  
**A Report of the Subcommittee on Small and Community-Scale Wind**  
**Governor's Taskforce on Windpower**

Carpe Ventem  
(The motto of the Wind for Schools Program)

**Introduction**

Currently, approximately 1% of Maine's electrical generation is from wind power, and a tinier percentage than that comes from small and community owned wind generators. Yet the state has enough potential windpower resources to provide a far higher percentage. The benefits of wind power are not just available in the large-scale setting of wind farms where the generated power is sold to electrical utilities. Economically and socially beneficial applications using appliance-sized up to commercial-sized wind turbines on a smaller scale are also possible. The purpose of this report is to present at a high level the potential benefits of and barriers to small and community scale wind power in Maine. We conclude with recommendations to remove barriers and promote additional small and community wind in Maine

**Generator Sizes**

Our recommendations cover three sizes of wind generators:

1. Small, so-called "appliance" sized turbines for individual residences or small businesses ( about 20-25 kW);
2. Medium sized turbines that may be at roughly the state's net metering limit (100 kW) that might be useful for groups of homes, schools, or larger electricity users;
3. Larger turbines in the 1-5 mW scale.

Differentiating among the three scales of community wind becomes important for some of the particular recommendations below.

**Ownership Patterns**

Small and community wind is defined not only by smaller size , but also by its ownership pattern. By definition the category excludes windpower development by commercial windpower developers. Small wind is defined as windpower generation owned primarily by individuals. Community wind is defined as generation capability owned by individuals or groups of local investors, or by local institutions such as hospitals or businesses, or by wind projects developed and installed on public property by a municipal entity, such as a municipal utility, school district, county jail, or other small jurisdiction.

**Small and Community Wind Potential**

Small and community wind projects have the potential to positively effect public acceptance of windpower. It is anticipated that the eventual appearance of wind turbines in many locations spread across the state will raise public awareness that wind indeed is a usable resource for power generation and that technology exists to exploit it. With increasing public awareness of the contribution of fossil fuel generation to global warming, wind power will likely come to be seen as a good way for citizens to take responsibility for and mitigate the environmental impact of traditional electricity

generation. Community wind projects provide an important opportunity to educate the general public on issues associated with climate change, reduction in carbon dioxide emissions, and alternative energy sources. By their nature, community wind projects do not raise some of the issues that larger-scale projects do. These aspects of community wind should be taken advantage of, and means that the value of community wind projects go beyond basic economics.

While our subcommittee viewed the major potential of community wind as primarily educational, the point should not be lost that in some countries with major windpower contributions to the grid, community wind is the dominant form of ownership. For example, eighty-four percent of the turbines in Denmark are owned by residents instead of commercial investors (Bolinger, 2004). In Germany 88% of the turbines are community owned (Bolinger, 2004) This picture offers evidence that, over the long term, community wind in Maine could move from small scale educational and awareness-raising efforts to larger scale contributions to the electricity generation system.

### **Economic Contribution**

A study developed by the University of Minnesota determined that community wind in the United States has a greater economic impact on local economies than does corporate wind (Kildegaard & Myers-Kuykindall, 2006). According to the study, “community wind has four times the economic impact on local value added, and 2.8 times the impact on local job creation, relative to a corporate-owned development”(2006, 21).

### **Potential Barriers ( this needs to be fleshed out somewhat. Your help is requested.)**

Land Use Restriction  
High Cost of Feasibility Study  
Poor Wind Resource  
Access to Transmission Lines  
Interconnection Process  
Securing Financing  
Lack of State Incentives  
Lack of Support from the Community

### **Recommendations**

#### **1. Develop a model municipal wind ordinance.**

- For use/adoption in towns statewide to incentivize the development of community wind
- Address issues of potential community concern (setbacks, height, etc.)
- Include consideration of the three general classes of community-scale wind (appliance-scale, medium, and larger).

#### **2. Remove obstacles at the feasibility (i.e. pre-construction) stage**

- Develop program with University of Maine system to build capacity in Maine to assist meteorological studies, economic analysis
  - Investigate use of existing cell phone towers as MET study sites
3. **Provide a data clearinghouse**
- assist with other aspects of wind power development by building knowledge base. UMass Renewable Energy Lab is an example.
  - Request the PUC to study and develop appropriate rules regarding fee structures and timelines for utility companies to respond to requests for inter-connection studies.

*Recommendation still needing sub-committee consensus:*

- *Providing technical assistance on an on-call basis. Through a sub-contractor, dedicated staff, or other such mean to provide on-call assistance. Note: we talked about this today with the PUC serving such a role, particularly with inter-connection studies.*
4. **Provide financial incentives/economic assistance**
- Allow net-metering above 100 kW for electricity generation portion of rates only.

*Recommendations still needing sub-committee consensus:*

- *Remove PUC proximity rule.*
  - *Develop revolving loan program (such as through Efficiency Maine )to assist feasibility studies. PUC currently has a program for renewables that is geared to construction; the program's rules could be loosened so that work at the feasibility stage would be eligible as well.*
  - *Allow group ownership of generation infrastructure.*
  - *Offer rebates for small installations (appliance size) similar to the solar rebate program presently offered at the PUC. Could be done as an expansion of existing solar program recognizing wind power as an equally emerging technology to Solar with better paybacks and fewer technical drawbacks. Stipulation would be that installations be done at sites that at a minimum demonstrate class (?) wind capability on AWS True wind maps or other wind data.*
  - *BETR treatment for wind generating facilities above the appliance size.*
5. **Designate a Facilitator within DOE to engage Maine schools in the Wind for Schools Program**

<http://www.eere.energy.gov/windandhydro/windpoweringamerica>

Currently involves 5 states ( Colorado, Kansas, Nebraska, Montana, South Dakota)

5 Additional States planned for Spring 2008

6. **Direct Community College System to Investigate Wind Power Training Needs Study to be Complete by xx, yyyy**

- Possible need for technicians trained in wind turbine technology. Funding will be likely needed to develop and deliver a training program.

7. **Designate Responsibility within the University of Maine System**

Investigate Small and Community Windpower Research and development needs

## References

Bolinger, M. A. 2004. **Community**-owned wind power development: *The challenge of applying the European model in the United States, and how states are addressing that challenge*. Presented at Global **Windpower** 2004. Chicago: Lawrence Berkeley National Laboratory

**Kildegaard** and **Myers-Kuykindall**, 2006. Contact Arne **Kildegaard** at University of Minnesota, Morris for most recent copy- [kildegac@morris.umn.edu](mailto:kildegac@morris.umn.edu)